

### **REMARKS**

The amendments and remarks presented herein are believed to be fully responsive to the Office Action.

Claims 21-24, 30-33 and 35-37 are pending in the present application. Claims 25-29, 34 and 38 have been cancelled, without prejudice. No new matter has been added. The independent claims recited in the present application are claims 21, 30 and 35.

**Examiner Interview Summary:** Attorney (Changhoon Lee) for the Applicant conducted a telephonic interview with Examiner Michelle N. Owyang and the primary Examiner regarding the present application on January 12, 2009. The discussion between the Examiners and the Attorney focused on the claimed invention with proposed amendment. The Attorney presented that the claimed invention as amended above, particularly the amended limitations, is patentably distinguishable over Monteverde (Publication No. US 2003/0088553), Yoo et al. (Patent No. 7,146,416), Rajaraman et al. (Patent No. 6,336,910) and combination thereof. The Attorney and Examiners clarified the difference between the claimed invention and the cited references. In accordance to the Examiner's comments, Applicant respectfully amends the limitations as follows: "upon receipt of instructions from a manager, associating a representative keyword included in a first keyword group associated with a first representative category, with a second keyword group associated with a second representative category to reflect current societal interest, independent of statistical data of previous searches."

## **OBJECTIONS:**

### **A. Specification**

The Office Action objects to the specification as failing to provide proper antecedent basis for the claimed subject matter “a computer readable record medium” recited in claims 35-37. Applicant respectfully traverses because the specification clearly provides proper antecedent basis for the claimed subject matter (i.e. storage media), for example, at par [0086] ~ [0088] of the specification:

[0086] The embodiments of the present invention include computer readable media including program instructions to implement various operations embodied by a computer. The media may also include, alone or in combination with the program instructions, data files, data structures, tables, and the like. The media and program instructions may be those specially designed and constructed for the purposes of the present invention, or they may be of the kind well known and available to those having skill in the computer software arts.

### **B. Claim Objections**

The Office Action objects to the claims 21, 30 and 35 for lack of antecedent basis: “the received keyword.” Applicants respectfully correct claims 21, 30 and 35.

The Office Action further objects to claim 33 because the claim recites “the system of claim 30 although claim 30 recites “a search service method.” Applicants respectfully correct claim 33.

## **Examiner's Notes**

The Office Action notes that claims 35-37 reciting "a computer readable record medium" implies the readable record medium that is physical and is statutory because it would exclude intangible material such as signal and carrier wave.

Applicants respectfully agree with the Examiner's notes. Nonetheless, Applicant respectfully submits claims 35-37 as amended herein, which recites "One or more storage media having stored thereon a computer program that, when executed by one or more processors, causes the one or more processors to perform acts including: a computer-readable record." The amendment has been made to explicitly exclude a transmission medium such as optical or metallic lines, wave guides, etc. including a carrier wave transmitting signals specifying the program instructions, data structures from the scope of claims 35-37, without prejudice.

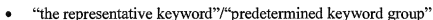
#### **CLAIM REJECTIONS:**

##### **A. Claim Rejections under 35 U.S.C. § 112**

The Office Action rejects claims 21-24, 30-34 and 35-37 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter because several limitations are not clearly understood. Applicants respectfully amend the claims as shown herein.

- "the received keyword"

Applicants amend "the received keyword" to "the search keyword" which refers to the search keyword included in the search request received from the user. For example, claim 30 recites: "... receiving a search request from a user through a communication network, the search



Claims 21, 30 and 35 contain at least one predetermined keyword group and data indicative of a number of searches made using one or more representative keyword or other keywords associated with the respective representative keywords. The representative keyword in

the keyword database refers to the same subject matter with “the representative keyword” in the category classification database. No new matter is added.

### **B. Claim Rejection under 35 U.S.C. § 103**

The Office Action states that claims 21-38 stand rejected under 35 U.S.C. 103(a), as being unpatentable over Monteverde (Publication No. US 2003/0088553) (hereinafter “Monteverde”) in view of Yoo et al. (Patent No. 7,146,416)( hereinafter “Yoo et al.”), and further in view of Rajaraman et al. (Patent No. 6,336,910)( hereinafter “Rajaraman”).

Applicants respectfully traverse these rejections. Further, claims 25-29, 34 and 38 have been cancelled, without prejudice. Thus, the rejections thereof are moot.

#### Claim 21

Claim 21 has been amended in accordance with the Examiner’s suggestion to clarify the claimed invention as follows:

... at least one memory having program instructions and databases, the databases including:

a category classification database including at least one representative category associated with one or more predetermined keyword groups, each of the predetermined keyword groups including one or more representative keywords and other keywords associated with the respective representative keywords;

a keyword database including at least one predetermined keyword group and data indicative of a number of searches made using one or more representative keywords or other keywords associated with the respective representative keywords, each of the representative keywords representing the other keywords associated with the representative keyword, which convey a same or similar meaning;

means for receiving a selection of a representative category associated with a predetermined keyword group from a manager;

means for associating a representative keyword included in a first keyword group associated with a first representative category, with a second keyword group associated with a second representative category to reflect current societal interest, independent of statistical data of previous searches;

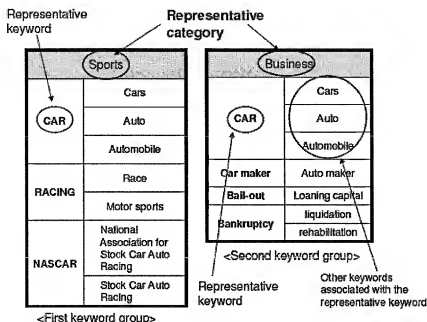
means for receiving a search request from a user through a communication network, the search request including a search keyword;

means for searching the category classification database for a representative category associated with a keyword group including the search keyword, the means for searching the category classification database determining at least one keyword group associated with the searched representative category;

means for searching the keyword database for a keyword group associated with the searched representative category and data indicative of a number of searches made using one or more representative keywords or other keywords associated with the respective representative keywords included in the searched keyword group;

means for providing the user with information showing popularity of keywords related to the search request based, at least in part, upon the data indicative of the respective number of searches made using the respective representative keywords or other keywords associated with the respective representative keywords included in the searched keyword group...

The popularity information also provides popularity of other keywords which fall within the same category with the search keyword does. However, statistical data of the previous searches sometimes could not reflect the current societal interest because social issues often change instantly. Further, the present invention further recognizes problems that a popular keyword could be misplaced under a category due to dual meanings of the keyword.



As illustrated in the above drawings, for example, a term “automobile” has been searched for topics related to recent bail-out program for car manufacturers in Detroit, but the popularity report system could recognize the term “automobile” for topics related to a recent car racing event, NASCAR, held in Florida early this year, instead of the bail-out issues because more searches have been made for the NASCAR event.<sup>1</sup> In this event, the popularity report would show popularity values of various keywords included in the “First keyword group” associated with the category of “Sports”, instead of the “Second keyword group” associated with the current hot topic category, “Business.” To correct this problem, the claimed invention requires the limitation (b), as proposed herein, of “upon receipt of instructions from a manager, associating a representative keyword included in a first keyword group associated with a first representative category, with a

<sup>1</sup> In the above illustrations, the terms “Sports” and “Business” are the representative categories; the term “CAR” is the representative keyword; and the terms “Cars”, “Auto” and “Automobile” are keywords associated with the representative keyword, “CAR”, recited in Claim 30.

second keyword group associated with a second representative category to reflect current societal interest, independent of statistical data of previous searches."<sup>2</sup> The claimed invention, upon receipt of instructions from a manager, associates a representative keyword (i.e. CAR) included in the first keyword group associated with the first representative category (i.e. Sports), with the second keyword group associated with the second representative category (i.e. Business) to reflect current societal interest.

The Examiner attributes this teaching to Rajaraman et al. In the Office Action, the Examiner admits that neither Monteverde nor Yoo et al. discloses the previously presented limitation (b) of "upon receipt of instructions from a manager, associating a first representative category with a different representative keyword in a different predetermined keyword group. An amendment to these steps has been made to particularly point out and distinctly claim the subject matter as shown in the propose amendment. Application believes that neither Monteverde nor Yoo et al. teaches the proposed limitation (b).

However, the Examiner indicates that Rajaraman discloses the limitation (b). Applicant respectfully disagrees with the Examiner's positions. The system or method of Rajaraman et al. provides additional index database for synonyms to provide better search result.

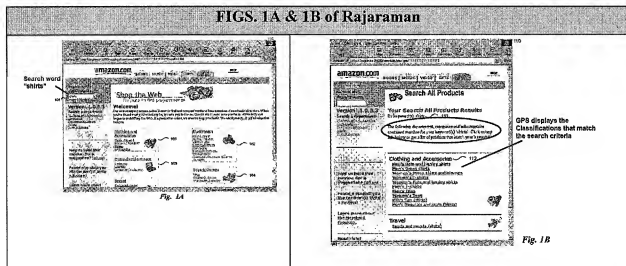
The GPS system disclosed in Rajaraman et al., upon receipt of search criteria, scores each classification in the classification hierarchy to indicate the degree to which the classification contains items that match the search criteria. Referring to col. 3, line 8 – col. 4, line 10 and FIGS. 1A & 1B of Rajaraman, the GPS system would generate a score for the search term "shirts," and

---

<sup>2</sup> The amended limitation is also supported in the specification, for example, para. [0033], "Therefore, the keyword 'seven' intended for the singer 'seven' is currently input, however, in case that the social issue changes, for example, into a drama 'seven' and user's interests thereon go up, and..."



then selects those classifications or sub-classifications with the highest scores and displays them in order based on their score. For example, Fig. 1A below shows that a user enters a search term "shirts" to search an online shopping website (i.e., Amazon.com) for items that match the search term. Because users often find it difficult to interface with hierarchically presented information, the GPS system displays the names of the selected classifications with no indication of where the classifications are within the hierarchy. For example, upon receipt of the search term "shirts," the GPS system simply lists the classification names that match the search criteria, such as "MEN'S DRESS SHIRTS" or "MEN'S T-SHIRTS," as follows:



Once the GPS system displays the search results, as shown in FIG. 1B, a user is required to select one of the classifications to view detailed information about the classification. For example, if the user is interested in purchasing a T-shirt for a man, then the user may select the category "Men's T-shirts." Upon selecting this classification, the GPS system displays information describing the items within that classification. If the selected classification has sub-classifications, then the GPS system instead displays the sub-classifications. (See col. 4, lines 45 – 54 of Rajaraman).

Rajaraman et al. discloses another embodiment that the GPS system a synonyms table to cover synonyms or typographical errors. For example, col. 6 line 64 – col. 8 line 25 of

Rajaraman et al. recites:

In one embodiment, the GPS system logs search requests along with the search results and may also log which search results (i.e., classifications) are selected by the user. Periodically, these logs can be analyzed to determine whether synonyms should be added for a search term. For example, users may enter the search term "aparel," rather than "apparel." Because the term "aparel" is not in the product database and not in the classification hierarchy, the search result will be empty. Therefore, it would be useful to add the term "aparel" as a synonym of "apparel." The GPS system provides a log analyzer to help determine when to add synonyms. In one embodiment, the log analyzer identifies the search requests that resulted in no search results or in very few classifications in the search results and displays the identified search requests to an analyst responsible for deciding on synonyms. For example, the terms of the identified search requests can be displayed along with a field so that the analyst can enter the word(s) with which the displayed search term is synonymous. The log analyzer may also display statistical information as to how many times the displayed search term was entered by a user. Also, the log analyzer may display additional information such as a subsequent search request entered by the same user that does return search results. The log analyzer may also display search requests for which the user selected none of the search results. In such a situation, the analyst may also want to add the search terms as synonyms. For example, if users enter the search request "sole" and the search results relate only to shoes, the analyst may want to indicate that "sole" is a synonym for "soul," as in music.

The GPS system of Rajaraman et al. searches GPS index database to locate entries thereof that contain words best match the search criteria by adjusting a search result with different weights (scores) depending on the presence of the search term in the various level of the hierarchical classifications, such as a category, a sub-category, or an item type name.

Synonym Table according to Rajaraman et al.	
Search Term	Synonym
Apparel	Aparel, clothing...
Sole	Soul, ...
...	...

The synonyms disclosed in Rajaraman et al. correspond to the other keywords associated with the representative keyword, which convey a same or similar meaning, recited in claim 30. For example, the terms “cars”, “auto” and “automobile” illustrated in the above drawings are synonyms of the representative keyword, “car”. The synonymous keywords are different from the keyword group or representative category of the claimed invention. The claimed invention re-associates the representative keyword with a different keyword group associated with a different representative category to provide popularity report showing popularity values of keywords related to a hot topic at the time of the search.

Generally, the keyword search system stores an index database for use in later queries and, upon receipt of a search query from a user, examines the index database to provide a listing of best-matching items according to its criteria. The search logic generally refers to a method of determining (or extracting) one or more search keywords in the original search query and/or a method of determining best-matching items. For example, most search engines support the use of the boolean operators AND, OR and NOT to further specify the search query. The method of using Boolean operators could be search logic. Further, most search engines employ methods to rank the results to provide the “best” results first. The system or method of Rajaraman et al. provides additional index database for synonyms to provide better search result.

The synonyms disclosed in Rajaraman et al. correspond to the other keywords associated with the representative keyword, which convey a same or similar meaning, recited in claim 30. For example, the terms “cars”, “auto” and “automobile” illustrated in the above drawings are synonyms of the representative keyword, “car”. The synonymous keywords are different from the keyword group or representative category of the claimed invention. The claimed invention re-associates the representative keyword with a different keyword group associated with a different representative category to provide popularity report showing popularity values of keywords related to a hot topic at the time of the search, independent of statistical data of previous searches.

Yoo et al. is also directed to a method of providing buzz (the term “buzz” refers to a measurement of the user activity that relates to a particular topic, term or category) report for a search term, a topic and a category, in order of number of counts, along with an indication of relative change in buzz values. However, Yoo et al. does not teach or suggest reassignment of a search keyword to a different category, independent of statistical data of previous searches, to reflect current hot topics.

Further, Yoo et al. does not provide the Buzz report in response to a search request for information in association with a keyword. Column 4, lines 49-54 of Yoo et al. recites:

When a user arrives at a particular page after navigating a subject directory, the page hit might be associated with the subject of the navigation. By comparing changes or trends in the traffic associated with a search term or a category, the “buzz” associated with a topic, term or category can be assessed.

Referring to Figs. 9-13 of Yoo et al., a user can find a Buzz report by navigating categories or searching for the Buzz report with a specific term. However, Yoo et al. does not disclose method of providing popularity information to a searcher in response to a general search request in a search engine that designed to search for information on the World Wide Web. Whereas, the popularity information of the present invention is presented to users in association with their usual search task, not a search for popularity information.

Monteverde discloses updating the most popular Internet sites to be displayed for the most popular category. Paragraph [0036] of Monteverde recites:

[0036] Referring to FIGS. 4 and 5, once the preponderant method determines the most popular topical category, the present invention may utilize statistical market research data to determine the most popular Internet sites assigned to that particular most popular topical category. The service provider may disclose the most popular topical category information with the statistical data provider 19 so that the Internet site information gets assigned to the proper topical category. As such, the present invention may track searcher activities when utilizing the service provider's search engine to determine which Internet sites are visited most within any given topical category and implement that data into an evolving system that will update the topical category database and provide the searchers with the most relevant Internet site(s) for any given search term based upon prior results. Once this statistical information is received by the statistical data provider, the Internet sites may then be organized based on a number of criteria including, but not limited to, the number of unique visitors to each Internet site, the total amount of traffic to the Internet site, the number of hyperlinks pointing to the Internet site, and any other data used to assess the popularity of the Internet site. Once the Internet site(s) are organized for that particular topical category, the most popular topical category is displayed along with its correspondingly assigned Internet site(s) information, followed by the next most popular

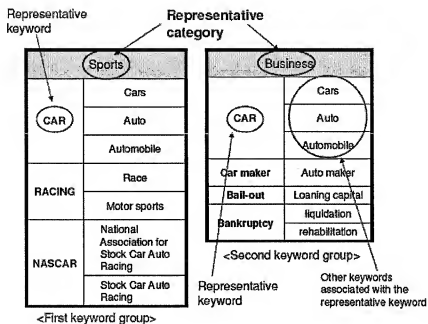
category with its correspondingly assigned Internet site information in the same fashion as stated above, and so on. Preferably, the most popular topical category search results are listed first by listing all Internet sites' information assigned to that specific most popular topical category and organized with the statistical information. It is anticipated that the most popular topical category assigned to the initial search result will contain the information that the searcher was initially searching for.

First of all, the system of Monteverde reassigns not a search keyword but the most popular Internet web sites. Moreover, the system of Monteverde does not reassign the Internet web site to show popularity of search keywords in association with a category of the search keywords. Monteverde only determines the most popular Internet web sites assigned to that particular most popular topical category and updates popular Internet web sites to be assigned to the particular topical category based on statistical market research. As such, neither Yoo et al. nor Rajaraman teaches or suggests means for associating a representative keyword included in a first keyword group associated with a first representative category, with a second keyword group associated with a second representative category to reflect current societal interest, independent of statistical data of previous searches. Therefore, claim 21 is now in condition for allowance.

#### Claims 30 and 35

Claim 30 of the present invention is a method of providing a user with information showing popularity of a search keyword related to a user's search request to reflect current or recent societal interest. The popularity information also provides popularity of other keywords which fall within the same category with the search keyword does. However, statistical data of the previous searches sometimes could not

reflect the current societal interest because social issues often change instantly. Further, the present invention further recognizes problems that a popular keyword could be misplaced under a category due to dual meanings of the keyword.



As illustrated in the above drawings, for example, a term “automobile” has been searched for topics related to recent bail-out program for car manufacturers in Detroit, but the popularity report system could recognize the term “automobile” for topics related to a recent car racing event, NASCAR, held in Florida early this year, instead of the bail-out issues because more searches have been made for the NASCAR event.<sup>3</sup> In this event, the popularity report would show popularity values of various keywords included in the “First keyword group” associated with the category of “Sports”, instead of the “Second

<sup>3</sup> In the above illustrations, the terms “Sports” and “Business” are the representative categories; the term “CAR” is the representative keyword; and the terms “Cars”, “Auto” and “Automobile” are keywords associated with the representative keyword, “CAR”, recited in Claim 30.

keyword group” associated with the current hot topic category, “Business.” To correct this problem, the claimed invention requires the limitation (b), as proposed herein, of “upon receipt of instructions from a manager, associating a representative keyword included in a first keyword group associated with a first representative category, with a second keyword group associated with a second representative category to reflect current societal interest, independent of statistical data of previous searches.”<sup>4</sup> The claimed invention, upon receipt of instructions from a manager, associates a representative keyword (i.e. CAR) included in the first keyword group associated with the first representative category (i.e. Sports), with the second keyword group associated with the second representative category (i.e. Business) to reflect current societal interest.

The Examiner attributes this teaching to Rajaraman et al. In the Office Action, the Examiner admits that neither Monteverde nor Yoo et al. discloses the previously presented limitation (b) of “upon receipt of instructions from a manager, associating a first representative category with a different representative keyword in a different predetermined keyword group. An amendment to these steps has been made to particularly point out and distinctly claim the subject matter as shown in the propose amendment. Application believes that neither Monteverde nor Yoo et al. teaches the proposed limitation (b).

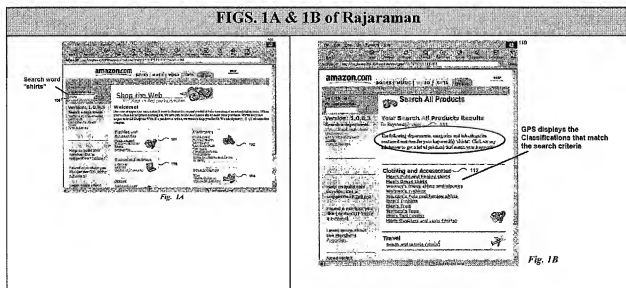
However, the Examiner indicates that Rajaraman discloses the limitation (b). Applicant respectfully disagrees with the Examiner’s positions. The system or method of Rajaraman et al. provides additional index database for synonyms to provide better search result.

---

<sup>4</sup> The amended limitation is also supported in the specification, for example, para. [0033], “Therefore, the keyword ‘seven’ intended for the singer ‘seven’ is currently input, however, in case that the social issue changes, for example, into a drama ‘seven’ and user’s interests thereon go up, and....”



The GPS system disclosed in Rajaraman et al., upon receipt of search criteria, scores each classification in the classification hierarchy to indicate the degree to which the classification contains items that match the search criteria. Referring to col. 3, line 8 – col. 4, line 10 and FIGS. 1A & 1B of Rajaraman, the GPS system would generate a score for the search term "shirts," and then selects those classifications or sub-classifications with the highest scores and displays them in order based on their score. For example, Fig. 1A below shows that a user enters a search term "shirts" to search an online shopping website (i.e., Amazon.com) for items that match the search term. Because users often find it difficult to interface with hierarchically presented information, the GPS system displays the names of the selected classifications with no indication of where the classifications are within the hierarchy. For example, upon receipt of the search term "shirts," the GPS system simply lists the classification names that match the search criteria, such as "MEN'S DRESS SHIRTS" or "MEN'S T-SHIRTS," as follows:



Once the GPS system displays the search results, as shown in FIG. 1B, a user is required to select one of the classifications to view detailed information about the classification. For

example, if the user is interested in purchasing a T-shirt for a man, then the user may select the category "Men's T-shirts." Upon selecting this classification, the GPS system displays information describing the items within that classification. If the selected classification has sub-classifications, then the GPS system instead displays the sub-classifications. (See col. 4, lines 45 – 54 of Rajaraman).

Rajaraman et al. discloses another embodiment that the GPS system a synonyms table to cover synonyms or typographical errors. For example, col. 6 line 64 – col. 8 line 25 of Rajaraman et al. recites:

In one embodiment, the GPS system logs search requests along with the search results and may also log which search results (i.e., classifications) are selected by the user. Periodically, these logs can be analyzed to determine whether synonyms should be added for a search term. For example, users may enter the search term "aparel," rather than "apparel." Because the term "aparel" is not in the product database and not in the classification hierarchy, the search result will be empty. Therefore, it would be useful to add the term "aparel" as a synonym of "apparel." The GPS system provides a log analyzer to help determine when to add synonyms. In one embodiment, the log analyzer identifies the search requests that resulted in no search results or in very few classifications in the search results and displays the identified search requests to an analyst responsible for deciding on synonyms. For example, the terms of the identified search requests can be displayed along with a field so that the analyst can enter the word(s) with which the displayed search term is synonymous. The log analyzer may also display statistical information as to how many times the displayed search term was entered by a user. Also, the log analyzer may display additional information such as a subsequent search request entered by the same user that does return search results. The log analyzer may also display search requests for which the user selected none of the search results. In such a situation, the analyst may also want to add the search terms as synonyms. For example, if users enter the search request "sole" and the search results relate only to shoes, the analyst may want to indicate that "sole" is a synonym for "soul," as in music.

The GPS system of Rajaraman et al. searches GPS index database to locate entries thereof that contain words best match the search criteria by adjusting a search result with different weights (scores) depending on the presence of the search term in the various level of the hierarchical classifications, such as a category, a sub-category, or an item type name.

Synonym Table according to Rajaraman et al.	
Search Term	Synonym
Apparel	Aparel, clothing...
Sole	Soul, ...
...	...

The synonyms disclosed in Rajaraman et al. correspond to the other keywords associated with the representative keyword, which convey a same or similar meaning, recited in claim 30. For example, the terms “cars”, “auto” and “automobile” illustrated in the above drawings are synonyms of the representative keyword, “car”. The synonymous keywords are different from the keyword group or representative category of the claimed invention. The claimed invention re-associates the representative keyword with a different keyword group associated with a different representative category to provide popularity report showing popularity values of keywords related to a hot topic at the time of the search.

Generally, the keyword search system stores an index database for use in later queries and, upon receipt of a search query from a user, examines the index database to provide a listing of best-matching items according to its criteria. The search logic generally refers to a method of determining (or extracting) one or more search keywords in the original search query and/or a

method of determining best-matching items. For example, most search engines support the use of the boolean operators AND, OR and NOT to further specify the search query. The method of using Boolean operators could be search logic. Further, most search engines employ methods to rank the results to provide the "best" results first. The system or method of Rajaraman et al. provides additional index database for synonyms to provide better search result.

The synonyms disclosed in Rajaraman et al. correspond to the other keywords associated with the representative keyword, which convey a same or similar meaning, recited in claim 30. For example, the terms "cars", "auto" and "automobile" illustrated in the above drawings are synonyms of the representative keyword, "car". The synonymous keywords are different from the keyword group or representative category of the claimed invention. The claimed invention re-associates the representative keyword with a different keyword group associated with a different representative category to provide popularity report showing popularity values of keywords related to a hot topic at the time of the search, independent of statistical data of previous searches. Therefore, claims 30 and 35 of the present invention are in condition for allowance.

Claims 22-24 depend from independent claim 21 and, as such, are in allowable condition since claim 21 is clearly allowable over the cited prior art.

Claims 31-33 depend from independent claim 30 and, as such, are in allowable condition since claim 30 is clearly allowable over the cited prior art.

Claims 36-37 depend from independent claim 35 and, as such, are in allowable condition since claim 35 is clearly allowable over the cited prior art.

In light of the aforementioned amendments and discussion, Applicant respectfully submits that the application is now in condition for allowance.

If any issue regarding the allowability of any of the pending claims in the present application could be readily resolved, or if other action could be taken to further advance this application such as an Examiner's amendment, or if the Examiner should have any questions regarding the present amendment, it is respectfully requested that the Examiner please telephone Applicant's undersigned attorney in this regard.

Respectfully submitted,

Date:

March 10, 2009



Changhoon Lee  
Reg. No. L0316  
Blackwell Sanders LLP  
720 Olive Street, Suite 2400  
St. Louis, MO 63101  
314-345-6000  
ATTORNEYS FOR APPLICANT